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Mr. William Messenger
Region V
U.S. Environmental Protection Agency
Mail Stop HSE-5J
77 West Jackson Boulevard
Chicago, Illinois 60640-3590

ERM

RE: Expanded Site Investigation Report
DESA Industries

Dear Mr. Messenger:

Environmental Resources Management-North Central, Inc. (ERM-North Central), on behalf of DESA Industries, has received and reviewed the recently released Black & Veach Waste Science, Inc. report entitled "Expanded Site Inspection Report, AMCA International Corp. (AKA Continental-Midland, Inc.), Park Forest, Illinois, U.S. Environmental Protection Agency ILD 051 069 854 dated July 25, 1994" (the "ESI"). ERM-North Central performed this review to: (1) evaluate the accuracy and technical quality of the report, and (2) incorporate the specific details and results of the ESI report into a technical memorandum describing all of the investigations performed at the DESA site, which has been requested by the Illinois State Attorney General. That technical memorandum will form the basis for future discussions between the State of Illinois and DESA Industries regarding the property.

During the document review process undertaken by ERM-North Central, it became evident that several technical deficiencies have compromised the validity of the data included in the ESI and, thus, the associated findings. Specific deficiencies include the following:

1. Ground water elevation data are not presented in the ESI and the assumed ground water flow direction may be in inaccurate.

2. The residential ground water sample designated as "background" appears to represent softened water rather than ground water.

3. Inferences made in the ESI regarding changes in concentrations of parameters analyzed in ground water samples across the site are inaccurate.

4. Inaccurate characterization of the sediment sample designated as background.

5. Inadequate evaluation of geologic data collected during the ESI, resulting in inadequate interpretation of vertical ground water movement.

6. Soil boring data is not discussed or utilized in the ESI.

7. The ESI does not identify that the 1986 ERM-North Central laboratory analytical data for metals represent EP Toxicity results.

It was hoped that the majority of these issues could be resolved by referring to the Work Plan and QAPP referenced in the ESI. Consequently, a Freedom of Information Act (FOIA) request was filed with USEPA on January 30, 1995 requesting these documents. The response to the FOIA, however, states that no such documents are found in the Agency's files. Therefore a complete review of the ESI is not currently possible. Our review to date indicates the overall validity of the ESI is suspect. Detailed discussions of the deficiencies listed above follow:

1. No ground water elevation data for either the residential wells in the area of the site or for the site monitoring wells are included in the ESI. The statements regarding well elevations and ground water flow on Page 3-6 of the ESI indicate that relative ground surface elevations rather than relative ground water elevations were used to determine the ground water flow direction in the shallow bedrock aquifer underlying the site.

2. The proposed upgradient (background) ground water sample collected in the residential well designated RW02, has associated laboratory analytical results that strongly suggest the water passed through a water softener prior to sampling. The metals analytical data presented for RW02 in Appendix C of the ESI have lower calcium and

magnesium values and higher sodium values than any of the ground water sample results presented in the Illinois State Water Survey ISWS Data Base for wells located in the vicinity of the DESA property which tap the Silurian Dolomite Aquifer. Although B&V believed, and recorded in their field notes (personal communication), that the water softener equipment on the premises was bypassed during sample collection, the cation analytical results for that sample indicate that the water softener was not successfully bypassed, or that flushing of the water system prior to sampling did not remove all softened water. Therefore, the comparisons of ground water data obtained from RW01 and RW03 through RW06 with the RW02 data are not valid. The ISWS Water Analysis Data Base provides more appropriate background values for comparison with the ground water data collected during the ESI.

3. The ESI report infers that certain analytical parameters from samples in the Silurian dolomite (uppermost bedrock) aquifer increased in value across the site. As described in issues Nos. 1 and 2 above, the evaluation of both the ground water flow and the background analytic concentrations appears to be inadequate or lacking in the ESI, making the analysis presented inherently inaccurate.

4. Table 3-1 of the ESI states that sediment sample ST04 was collected from a stream bed exiting the site along the southern property line; Table 3-2 of the ESI refers to ST04 as the background sediment sample. Field reconnaissance on January 31, 1995, however, showed that the ST04 sample location was in fact downstream from a concrete manufacturing facility and is a direct drain for a holding pond on that property. Additionally, the ST04 location is in close proximity to Western Avenue, a major thoroughfare that is subject to vehicle emissions, road salts, and asphalt residues. Therefore, the selection of ST04 as a background sample for the purpose of comparison with sediment samples collected on the DESA property represents a questionable technical decision.

5. The ESI states on Page 5-1 that the unconsolidated aquifer and the shallow bedrock aquifer are hydraulically

connected but there is no substantiation for this statement in the data. The geologic logs provided in Appendix C of the ESI describe the materials encountered during installation of the three ESI monitoring wells. From these boring logs, the materials encountered included continuous intervals of low permeability silty clay from the ground surface to depths of 21 feet in MW-7, 27 feet in MW-9, and 38 feet in MW-8. The soil boring logs also indicate that ground water was encountered during drilling at a minimum depth of 19 feet in MW-8, 25 feet in MW-7, and 65.9 feet in MW-9. It is also evident from the soil boring descriptions that the moisture content of the unconsolidated materials varies greatly depending upon the hydraulic properties (based on visual observation) of the materials encountered. In other words, ground water encountered within the unconsolidated glacially derived sediments which overlie bedrock occurs as localized perched intervals within the unconsolidated geologic section. Additionally, given the irregular distribution of references in geologic logs to wet and moist areas within the lower, sandy portion of the unconsolidated materials beneath the site, it is clear the vertical movement of ground water through the upper clayey interval is limited. The lack of detectable results for potential site related compounds, including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), PCBs and the pesticides, and metals for ground water samples collected from bedrock wells MW-7, MW-8, and MW-9 clearly support this conclusion. A comparison of laboratory analytical results for MW-7, MW-8, and MW-9 to analytical data present in the Illinois State Water Survey records for wells in the area around the DESA facility also clearly demonstrates that the bedrock aquifer has not been affected by site related activities.

6. The ESI does not utilize the new soil boring data to confirm the statements on Page 5-2 in the 1990 SSI for the DESA property regarding the possible existence of a clay confining layer isolating surface materials from the bedrock aquifer. The new soil boring data show that a thick sequence of low permeability clay occurs immediately beneath the ground surface across the DESA property, thus restricting movement of potential

contaminants to ground water. Ground water sampling analytical results from both the previous investigations and the current ESI investigation support this observation.

7. Section 4.2.2 of the ESI Report summarizes the analytical results for previous soil sampling episodes at the DESA property. Sample results from the ERM-North Central 1986 Phase I Site Investigation include analytical results obtained using the EP Toxicity Test Method; commonly used at that time. The ESI does not qualify the results presented in Section 4.2.2 as obtained using the EP Toxicity Methodology.

Other issues of concern with the ESI Report include the lack of descriptions comparing the methodology employed in the field versus the specifications described in the ESI Work Plan mentioned in the first paragraph of Section 3.5 on Page 3-7 of the ESI. For example, the first sentence in the first paragraph of Page 2-5 of the ESI indicates that the June 1990 Ecology and Environment (E&E) Screening Site Investigation (SSI) sampled soil from seven on-site borings. This is not the case. In actuality, the last paragraph of Page 3-5 of the 1990 E&E SSI states that the soil samples were collected using a posthole digger, a trowel, and a shovel. Additionally, all of the samples except S7 were composited from two locations each, and do not represent distinct samples collected from each of the seven separate borings. The validity and use of composite samples during the 1986 ERM North Central Phase I RI was challenged by the IEPA during their review of the RI Report; however, the compositing of samples has been used by other investigations, including E&E as recently as 1990.

The ESI is a source of additional laboratory analytical and geologic information collected on and around the DESA Industries Park Forest grounds. This review is not meant to be arbitrarily critical of the Black & Veach effort in investigating the site, but the combination of either not collecting or omitting data from the ESI, misidentification of and lack of adequate background comparative data, and weak interpretations are a common element of the ESI. Given the potentially serious nature of the negotiations between DESA Industries and the State of Illinois which will be based upon the interpretations and conclusions presented in the ESI, it is important that legitimate technical questions concerning the validity of the data and interpretations presented are addressed. The above concerns will also be expressed in the forthcoming Technical Memorandum. Hopefully

once all of the site data are available in a single resource document, a clear picture will emerge regarding the potential risks (if any) to the environment resulting from the DESA Industries property.

If you have any questions, concerns, or responses regarding the ESI Review presented above, do not hesitate to call.

Respectfully yours,

ERM-NORTH CENTRAL, INC.

John C. Roberts, C.P.G.
Senior Project Geologist

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cc: Thomas Hoban
Gerald Willman, IEPA
James Polich, ERM-North Central
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